REMARKS

Favorable reconsideration is respectfully requested.

The claims are 1-7, with claims 6 and 7 being withdrawn from consideration.

The indication of allowable subject matter in claims 4 and 5 is acknowledged with appreciation. However, for reasons set forth below, it is considered that all of the claims in this application are now in condition for allowance.

With regard to Official Action paragraphs 2-4, the abstract has been amended responsive to the Examiner's comments.

Turning to Official Action paragraph 5, claim 2 has been objected to for failing to limit the subject matter of a previous claim in that claim 2 discloses apparatus limitations which fail to limit the previous independent claim.

In reply, claim 2 has been amended and while it contains apparatus limitations, the limitations have a functional or operational effect.

Accordingly, claim 2 further limits claim 1.

With regard to Official Action paragraph 6, claim 1 has been objected to for containing apparatus limitations which have not been given patentable weight since apparatus limitations, unless they affect the process in a manipulative sense, may have little weight.

In reply, the apparatus limitations designated by the objection affect the process in a manipulative sense. The reason is as follows:

The feature of claim 1 is its pressurization schedule, that is, a control of "a low-pressure loading from the initiation of the pressurization (when heated upper and lower heat plates are brought into contact with laminate materials) to 0.05 Mpa (0.5 kgf/cm^2) takes at least 10 seconds." (to be referred to as "the present control" hereinafter).

It is substantially impossible to carry out the present control by using a conventional hydraulic heating and pressurizing press machine. The reasons therefore are explained in detail in [0029] to [0034] at pages 7-8 of the present specification. Simply put, the reasons relate to reverse pressure generated due to thermal expansion.

As a solution therefore, it is conceivable to use a membrane press using a compressible fluid as a supporting means or a press machine using an air cylinder as a pressurization means. Some of these machines can carry out heating up to about 100°C.

However, none of these machines can carry out heating to a higher temperature. Applicants could not find a membrane press or press machine usable for the purpose of heating and pressurizing molding.

For example, with regard to a membrane press of Diekwisch (U.S. 5,522,478), when a heating apparatus is added to a lower heat plate for compression, a compressible fluid is also heated. It is necessary to provide a slidable seal which can keep materials to be laminated in a vacuum atmosphere and can respond to a minute force while the compressible fluid is heated. This is extremely difficult. Therefore, it becomes necessary to invent a structure which does not have a slidable seal at a heating portion.

The present press machine was invented to solve the above problems.

Heating and pressurizing bonding of a substrate obtained by impregnating an extremely fragile inorganic continuously porous sintered body (continuously porous ceramic) with a resin or a semiconductor wafer was attempted by using the present press machine. As a result, the present control was obtained.

Thus, the present control has become possible thanks to indispensable operating conditions and a machine comprising an indispensable system which can actualize these operating conditions.

Turning to paragraphs 7 and 8 of the Official Action, claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Linnon (U.S. 4,054,478) and are rejected under 35 U.S.C. 103 as being unpatentable thereover.

These rejections are respectfully traversed.

The inorganic substrate, which is the subject matter of the press working of the present invention, is a semiconductor wafer substrate or an inorganic continuously porous sintered substrate.

A semiconductor wafer substrate means a silicon wafer, etc., as described in [0051] of the present specification. The semiconductor wafer means a material obtained by slicing a columnar single crystal (e.g., single crystal silicon) prepared by the Czochralski method of Float Zone method, with a rotary knife to a thickness of about 0.6 mm and mirror-polishing the sliced columnar single crystal.

In contrast, the invention of Linnon is a method of manufacturing a laminate by forming a first suspension comprising a powdered P-type thermoelectric material, a binder and a liquid carrier, a second suspension comprising a powdered N-type

thermoelectric material, a binder and a liquid carrier and a third suspension comprising an insulative material, a binder and a liquid carrier; evaporating the respective liquid carriers from these suspensions, to form first, a second and third films respectively; stacking the first, second and third films respectively; stacking the first, second and third films; and heating the stack of films to volatize the binders; thereby producing the laminate (claim 1).

The subject matter of Linnon is completely different from and unsuggestive of the subject matter of the press working method of the present invention. Moreover, the problem to be solved by Linnon is completely different from the problem to be solved by the present invention.

Further, the rejection states that the low pressure loading from the initiation of the pressurization to 0.05 MPa takes at least 10 seconds at the reduced pressure (see column 5, lines 25-51) and the pressure loading is carried out by increasing the pressure up to a predetermined pressure in the range of from 0.05 to 5 MPa after the low pressure loading (see column 5, lines 62-68).

The descriptions in the above-cited parts of the specification are as follows.

The platens 26,28 press the stacked assembly together. In a typical example, the press exerts a pressure of about 6 to 12 KPSI at a temperature between 350° to 400°C for a period of 2 to 5 minutes (column 5, lines 31-35).

The range within which the temperature will normally be is about 150° to 600°C, the pressure ranging from about 2 to 16 KPSI and the time being in the range of 0.5 minutes to 1 hour (column 5, lines 64-68).

The unit for pressure used in Linnon is "KPSI", which means "kilo-pounds per square inch". The values represented by "KPSI" in Linnon are converted into values of "kgf/cm^2", which is a unit used in the present specification.

The converted values are as follows:

6 to 12 KPSI	→	420-840 kgf/cm^2	(column 5, line 34)
2 to 16 KPSI	→	140-1,125 kgf/cm^2	(column 5, line 67)
0.05 Mpa	→	0.05 kgf/cm^2	(claim 1, etc.)
0.05 to 5 Mpa	→	0.5 to 50 kgf/cm^2	(claim 5, line 17)
0.1 to 1 Mpa	→	1 to 10 kgf/cm^2	(claim 5, line 18)

Linnon and the present invention are different from each other with regard to press working materials. Further, the preferred pressure used in the invention of Linnon and the preferred pressure used in the present invention are different by a factor of ten or more.

In addition, the pressure 0.05 MPa (0.5 kgf/cm^2) recited in present claim 1 defines the lowest value of a time period which is from the initiation of pressurization to this pressure 0.05 MPa (0.5 kgf/cm^2). In contrast, Linnon discloses the retention time of a described pressure. From this point as well, it is apparent that the present invention is completely unobvious from Linnon.

Accordingly, the rejections under 35 U.S.C. 102 or 103 over Linnon are untenable and should be withdrawn.

No further issues remaining, allowance of this application is respectfully requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact undersigned at the telephone number below.

Respectfully submitted,

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